

CLAIMS

What is claimed is:

- 5           1. A server based method for automatically reporting vacant parking stalls comprising:
- a) accessing a plurality of digital images, each image associated with a portion of a parking facility and each image covering a plurality of parking stalls;
- b) performing computerized image processing on each image to
- 10       automatically detect vacant parking stalls of said plurality of parking stalls;
- c) indexing a map database with information regarding said vacant parking stalls of each image to determine physical locations of vacant parking stalls of said parking facility; and
- d) reporting information regarding a portion of said vacant parking stalls of
- 15       said parking facility.

2. A method as described in Claim 1 wherein said information is driving directions and wherein d) is performed by wirelessly transmitting said driving directions to a motorist directing said motorist to a vacant parking stall.

5           3. A method as described in Claim 1 wherein d) is performed by printing said information on a paper ticket given to a motorist at said parking facility.

10           4. A method as described in Claim 1 further comprising e) a motorist conveying location information to said server and wherein said information of d) is reported in a location-specific format based on said location information of said motorist.

15           5. A method as described in Claim 1 further comprising e) a motorist conveying native language information to said server and wherein said information of d) is reported in a language-specific format based on said native language of said motorist.

6. A method as described in Claim 1 wherein said information of d) is wirelessly transmitted to a mobile computer system of a motorist and further comprising displaying said information on a display screen of said mobile computer system.

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7. A method as described in Claim 1 wherein said parking stall is located in a parking garage.

8. A method as described in Claim 1 wherein said parking stall is on-  
10 street parking.

9. A method as described in Claim 1 wherein d) is performed using an IEEE 802.11 wireless Ethernet protocol.

15 10. A computer system comprising a processor coupled to a bus and a memory coupled to a bus, said memory comprising instructions for executing a method for automatically reporting vacant parking stalls comprising:

a) accessing a plurality of digital images, each image associated with a portion of a parking facility and each image covering a plurality of parking stalls;

b) performing computerized image processing on each image to automatically detect vacant parking stalls of said plurality of parking stalls;

5 c) indexing a map database with information regarding said vacant parking stalls of each image to determine physical locations of vacant parking stalls of said parking facility; and

d) reporting information regarding a portion of said vacant parking stalls of said parking facility.

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11. A system as described in Claim 10 further comprising a plurality of video cameras for capturing said digital images.

12. A system as described in Claim 10 further comprising a remote  
15 computer system accessible to a motorist and for displaying said information regarding a portion of said vacant parking stalls of said parking facility.

13. A system as described in Claim 10 further comprising a printer for printing a ticket containing said information regarding said vacant parking stalls of said parking facility.

5 14. A system as described in Claim 10 further comprising a parking type database for reporting a type of said vacant parking stalls of said parking facility.

15. A system as described in Claim 14 wherein said type of said vacant  
10 parking stalls is compact.

16. A system as described in Claim 14 wherein said type of said vacant parking stalls is handicap.

15 17. A system as described in Claim 10 wherein said information regarding said vacant parking stalls of said parking facility is selected based on a known location of a motorist.

18. A computer system comprising a processor coupled to a bus and a memory coupled to a bus, said memory comprising instructions for executing a method for automatically reporting vacant parking stalls comprising:

- a) accessing a plurality of digital images, each image associated with a portion of a parking facility and each image covering a plurality of parking stalls;
- b) performing computerized image processing on each image to automatically detect vacant parking stalls of said plurality of parking stalls;
- c) indexing a map database with information regarding said vacant parking stalls of each image to determine physical locations of vacant parking stalls of said parking facility; and
- d) reporting information regarding a portion of said vacant parking stalls of said parking facility to a mobile computer system accessible to a motorist.

19. A system as described in Claim 18 wherein said information is driving directions and wherein d) is performed by wirelessly transmitting said driving directions to said mobile computer system directing said motorist to a vacant parking stall.

20. A system as described in Claim 18 further comprising e) conveying location information of said motorist to said server and wherein said information of d) is reported in a location-specific format based on said location information of said motorist.

21. A system as described in Claim 18 further comprising e) conveying native language information of said motorist to said server and wherein said information of d) is reported in a language-specific format based on said native language of said motorist.

22. A system as described in Claim 18 wherein said information of d) is transmitted wirelessly to said mobile computer system of said motorist and further comprising displaying said information on a display screen of said mobile computer system.

23. A method for determining parking space availability comprising:

a) capturing an image of a portion of a parking area;

b) transmitting said image to a processor;

c) automatically determining available parking spaces within said image and mapping said image to said parking area;

d) outputting the location of an available parking space of said parking

5 area to a motorist.

24. A method as described in Claim 23 wherein said output of d) is printed on a ticket available to said motorist.

10 25. A method as described in Claim 23 further comprising displaying said location of an available parking space on a display screen of a computer system available to said motorist.

26. A method as described in Claim 23 wherein said parking space is  
15 located in a parking garage.



27. A method as described in Claim 23 further comprising determining a location of said motorist and reporting location specific parking availability based on said location of said motorist.

5 28. A method as described in Claim 27 wherein a global positioning system (GPS) is used to determine said location of said motorist.

29. A method as described in Claim 23 wherein step c) uses an IEEE 802.11 wireless Ethernet protocol to transmit said image.

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30. A method as described in Claim 23 further comprising transmitting said location of said available parking space to a wireless electronic device of said motorist, said electronic device comprising:

- a) a processor coupled to a bus;
- 15 b) a memory coupled to said bus;
- c) a communication circuit coupled to said bus;
- d) a display device coupled to said bus.

31. A method as described in Claim 30 further comprising displaying information about said location of said available parking space on said display device.

5           32. A method of finding vacant parking stalls comprising:  
a) a motorist providing a request to a remote service provider for parking availability, said request containing a location of said motorist;

b) said service provider polling parking garages nearby said motorist for parking availability;

10           c) said parking garages each automatically determining parking availability and reporting same to said service provider; and

d) said service provider providing parking availability results to said motorist.

15           33. A method as described in Claim 32 wherein c) comprises:

c1) accessing a plurality of digital images, each image associated with a portion of a parking garage and each image covering a plurality of parking stalls;

c2) performing computerized image processing on each image to

automatically detect vacant parking stalls of said plurality of parking stalls;

c3) indexing a map database with information regarding said vacant parking stalls of each image to determine physical locations of vacant parking stalls of said parking garage; and

5 c4) reporting information regarding a portion of said vacant parking stalls of said parking garage.

34. A method as described in Claim 32 wherein said request of a) is transmitted wirelessly to said service provider.

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35. A method as described in claim 34 wherein said parking availability results of d) are transmitted to said motorist using a wireless communication channel.

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36. A method as described in Claim 32 wherein said parking availability results are filtered to be customized to said motorist.